

Newton Abbot Rural District.

ANNUAL REPORTS

OF

Medical Officer of Health,

Sanitary Inspector,

AND

Assistant Sanitary Inspector,

1920.

H. B. MAPLETON, M.D., D.P.H.,

MEDICAL OFFICER OF HEALTH.



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PHYSICAL FEATURES.—The District consists largely of uplands, split up by numerous ravines, of varying elevation up to 1,500 feet above sea level, with a low-lying central area formed by the valley of the Teign and its tributaries. There are 28 parishes differing in size and population.

OCCUPATION.—Dairy Farming and Agriculture are general, but the clay workings of the Teign Valley are an important industry, and, with the potteries at Kingsteignton, Heathfield, Bovey Tracey, and Aller, give employment to several hundred workers.

There are also stone quarries at Trusham and Bickington; tin and copper mining is still carried on to a small extent.

AREA and POPULATION.—The District has an acreage of 99,142, and a population at the last census of 19,508; this is now estimated at 18,066 (figure supplied by the Registrar General).

RATEABLE VALUE.—On March 31st, 1920: Agricultural Land, £73,515; Buildings, £86,777; total, £160,292.

BALANCE OF LOANS OUTSTANDING at the same date amounted to £16,948 9s. 5d. for water supplies, £5,873 10s. 0d. for sewerage, and £2,355 under the Housing Acts; in all £25,176 19s. 5d.

OUTDOOR RELIEF during the year was given to the extent of £3,035 17s. 0d., as compared with £2,676 18s. 0d. in 1919; this is rather over 3s. 4d. per head of the population.

RAINFALL in 1920 was on the whole (7 stations in the District) somewhat below that of 1919—which nearly approximated the average. The alternation of long periods of wet and drought has of late years been a common occurrence,

well illustrated in 1920. Thus little rain fell from the end of January to the first week in March; May and June were both below the average; while from the 6th of August to the end of September a long period of drought was registered. January, December and July were the wettest months. In general the water supplies, even at Lustleigh, held out very well, and I had no complaints of shortage.

Record of the Stations in the District were as follows:—Broadhempston, 39.41; Haldon (Thorns), 35.22; Hennock, 43.23; Ilsington, 48.13; Leusdon, 65.34; Manaton, 48.00; Moreton (Blackingstone), 40.79.

SANITARY STAFF comprises, besides the M.O.H., Mr R. A. Rogers, Surveyor and Chief Sanitary Inspector; Mr. A. Gray, Assistant Sanitary Inspector.

Also in all the towns and chief villages, a water bailiff is employed by the various Parochial Committees, whose services are available for the distribution of disinfectant.

VITAL STATISTICS.—The number of deaths registered in the District was 187, but to these must be added 18 from the Union House, 4 from the Hospital, and 3 from the Isolation Hospital, these being in the Newton Urban District; also 6 which took place in County Mental Hospitals, and 23 other transferable deaths occurring in various outside localities. On the other hand 6 transferable deaths are deducted. This gives a nett total of 235 (111 in males, and 124 in females), resulting in a rate of 13.0 per 1,000, which is more than 3 points below the somewhat high figure of the preceding year (16.2), and fractionally lower than the decennial average of 13.6.

Sixty-eight deaths were registered in the first quarter, 53 in the second, 49 in the third, and 65 in the fourth, giving rates per 1,000 per annum of 15.1, 11.7, 10.8, and 14.4 respectively. Thus the first and last quarters shewed a somewhat higher mortality.

Of the total deaths, 8.5 per cent. were under one year of age, and 49.4 per cent. over 65 years, as compared with 6.8 and 51.2 in 1919; the average age at death worked out at 53.6 years.

The INFANT MORTALITY, or deaths under one year to 1,000 births, was 46, as against 71 in the previous year, and an average of 73 for the years 1910-1919. The causes of infant deaths were:—Tubercular Meningitis, 1; diseases of the nervous system, 1; of the respiratory system, 3; of the digestive system, 3; of the skin, 1; premature birth, 7; debility, 3; and accident, 1. Thus premature birth and debility were responsible for half the mortality.

The births of 215 boys and 222 girls give a general rate of 24.2 per 1,000, which is nearly 10 points higher than that of 1919 (14.8), and also a long way in advance of the mean for the previous decade (17.1).

One hundred and twenty births were registered in the first quarter, 128 in the second, 95 in the third, and 94 in the fourth, giving rates per 1,000 per annum of 26.6, 28.3, 21.0, and 20.8 respectively; the high water mark appears to have been reached in the second quarter.

The natural increase, or excess of births over deaths, was 202, which is rather over 11 per 1,000 of the population.

The zymotic rate worked out at .17 per 1,000, as compared with .40 in the previous year, and an average of .49 for the years 1910-1919.

The above figures present on the whole a marked improvement on those of the last two years; the death rate has again fallen to a comparatively low figure, while the birth rate has gone up with a bound—it has not been so large since 1897. (This is, however, probably only temporary, and there are already signs of a further decline in this respect).

The zymotic rate is small, while the infantile mortality is all but the lowest on record (it was 40 in 1914). The average age at death is well over 50, and the proportion of senile mortality is again about half of the total; these are all favourable points.

Under other chief headings deaths from the tubercular group have again declined (20 as compared with 28), while those from cancer (29) remain almost stationary (30 in 1919). The death rate due to the latter (1.6) is, therefore, again higher than that from phthisis (.83). Mortality from respiratory diseases has fallen from 41 to 20, while that from disorders of the circulation is rather more (54 as against 50); fatalities from violence were just double (8).

The figures for the Sub-Registration Districts work out as follows:—

NEWTON RURAL.—Death rate, 14.8; birth rate, 28.4; zymotic rate, .69; infantile mortality, 41; average age at death, 51.9 years.

CHUDLEIGH.—Death rate, 13.0; birth rate, 23.2; zymotic rate, nil; infantile mortality, 39; average age at death, 51.9 years.

ASHBURTON RURAL.—Death rate, 14.6; birth rate, 22.3; zymotic rate, nil; infantile mortality, 96; average age at death, 49.9 years.

MORETON.—Death rate, 12.2; birth rate, 23.9; zy-

motie rate, nil; infantile mortality, 85; average age at death, 53.3 years.

SEA BORDER.—Death rate, 10.2; birth rate, 22.0; zymotic rate, nil; infantile mortality, nil; average age at death, 64.3 years.

Thus Sea Border again shows considerably the best results, with the exception of the birth rate, which, however, is more than double the death rate.

Two parishes were without fatality—Buckland and Woodland; in two others Manaton (3.8 per 1,000), and Teigngrace (6.6), only a single death was registered. Besides these Bickington (9.9), Bishopsteignton (7.8), Coombe (8.6), Dawlish West (9.8), Ipplepen (7.2), North Bovey (8.5), Ogwell (9.2), and Stoke (9.4), shewed death rates of under 10 per 1,000. Only two parishes yielded rates of over 20—Abbotskerswell (20.5), and Ideford (31.7); in both these cases, however, the decennial average was very much lower (16.0 and 15.4 respectively).

Of the five more populous parishes, Bishopsteignton (7.8), again takes the first place, followed by Bovey (11.1); Bishopsteignton also showed the highest average age at death (62.4 years). Taking the average rate for the previous ten years, Bovey (11.8) remains at the head.

ZYMOTIC DISEASES.—There were 3 deaths due to the seven ordinary zymotic diseases—all from diphtheria. This compares with 7 in 1919, and 9 in 1918.

Cases of notifiable disease were 111 in number; these included 17 scarlet fever, of which 12 were credited to the Newton Rural Sub-District, and 5 to Moreton; diphtheria, 30 (Newton Rural, 26; Ashburton, Moreton, 1 each; Sea Border, 2); typhoid fever, 2 (Newton Rural, 1; Sea Border, 1); erysipelas, 10 (Newton Rural, 2; Chudleigh, 2; Ashburton, 3; Moreton, 1; Sea Border, 2); Ophthalmia Neonatorum, 2 (Moreton and Sea Border, 1 each); Pneumonia, 15 (Newton Rural, 2; Ashburton, 6; Moreton, 4; Sea Border, 3); Malaria, 2 (Moreton and Ashburton, 1 each).

Phthisis produced 28 notifications—Newton Rural, 6; Chudleigh, 8; Ashburton, 3; Moreton, 9; and Sea Border, 2. Five cases of other Tubercular Diseases were reported—2 in Newton Rural, and 1 each in Chudleigh, Ashburton, and Moreton.

MEASLES was prevalent at Ilsington (February and March); Chudleigh (June and July); North Bovey (July); and Leusdon (December). Schools were closed for a month in all these localities—except Chudleigh.

WHOOPING COUGH was restricted to the parishes of Abbotskerswell and Ogwell—in the late autumn months.

There were no fatalities from either of these diseases.

DIPHTHERIA was responsible for 30 notifications, as compared with 10 in the previous year. Twenty-three of these were credited to Kingsteignton, spread over ten months.

One small group of three attacks occurred towards the end of January in children attending the National School; an examination of the class suspected produced one carrier, and the exclusion of this child was apparently sufficient to control the infection.

Two months later, however, the disease again appeared in the same school, three attacks among the children being reported at the end of March, and five in April. I then made an examination of all the children, and on my advice the school was closed for disinfection for a fortnight. Absentees were visited, and several swabs taken, but were all negative. These measures seemed to check the disease as far as the National School was concerned, though three more children contracted infection at considerable intervals, but several scattered cases occurred in the parish in adults or children under school age, including two in the Council School. I again examined all the children in the National Infant School at the end of July, and took several swabs; a nasal "carrier" was discovered and isolated. There were two instances of multiple attacks in the same house (2 in each); two fatalities occurred in this parish.

Besides the above, isolated cases occurred at Kingskerswell (April), resulting from the visit of an infected child from another District; Dawlish Water (April); Ipplepen (May)—this boy came home from a boarding school in which an outbreak had recently taken place; Widecombe (June); Ogwell (August)—the patient had just returned from an infected house in Cornwall; another case, which was fatal, occurred in the same parish in November; Moreton (December); this patient was sent home ill from another district.

Of the above, 22 were in children under 15; five were between 15 and 25, two between 25 and 45, while one was over 60.

Twenty-three were removed to Hospitals—Newton 21, and Exeter, 2; there were three fatalities.

I sent up 83 swabs during the year, which resulted in the discovery of 7 "carriers," who were isolated till free from infection.

SCARLET FEVER produced 17 cases, as against 21 in the previous year. Eight of these were reported at Ogwell;

two (in one house) in April—two more in June (one of these—a young adult—came home peeling from Wales, and infected a child in a neighbouring cottage). I then examined all the children at the school and also absentees, but without result.

The remaining four were notified about a fortnight after the return of another member of the family from Hospital, and were probably "return" cases.

Later in the year (September) Moreton was responsible for 5 attacks (three in one family). Here again I examined all the children attending elementary schools, and accounted for absentees, but found no evidence of infection.

Isolated cases occurred at Kingsteignton and Coombe in November; in the latter case the patient was excluded from school by the head teacher on account of peeling, and I found on visiting the house a history of sore throat and rash a fortnight previously. Though there were of necessity many contacts—both at school and home—luckily there was no further spread of infection.

Finally two boys were attacked who had just come home from a boarding school, in which the disease was prevalent, just before Christmas, at Denbury.

Of the above cases, 13 were in children under 15 years, and the remainder between 15 and 20.

Ten were removed to hospital, and there were no fatalities.

TYPHOID FEVER was limited to two attacks, after an interval of four years, during which the District has been free from this disease. In one instance (a girl of 11 living at Bishopsteignton) infection was probably introduced by a visitor; there was another doubtful case in the house, but a blood test gave a negative result.

The other was in a Kingsteignton lad of about the same age, who had been eating shellfish from the river; this was at all events a possible cause of disease.

Both were treated at Newton Hospital, and made good recoveries.

INFLUENZA appeared to some extent in a milder form, but there was no great outbreak as in the previous years, and the fatalities were limited to 5. In anticipation, however, of a third wave of widespread infection, I made arrangements as far as possible for the provision of nursing assistance with local Nursing Associations, V.A.D.'s and others, in the principal centres of population. Each locality has to be, so to speak, self supporting in such a matter, because in a universal epidemic, outside nurses, often difficult to get in ordinary

times, would be unobtainable. Luckily the occasion for their services did not arise.

PNEUMONIA produced 15 notifications; in one case at Bickington, where influenza and this disease were prevalent to a considerable extent early in the year, a whole family was attacked, and nursing assistance was provided by the Authority.

In another, at Kingsteignton, a nurse was sent by the patient's employer.

Otherwise sick persons were attended to by members of the family without any difficulty.

MALARIA.—Two cases were reported, both of which evidently originated in the East of Europe.

ERYSIPELAS was responsible for 10 notifications—in persons varying in age from 15 to 55; there were no fatalities.

OPHTHALMIA NEONATORUM was limited to two attacks; in both cases the child recovered; they were visited by the County Council Nurses.

PHTHISIS.—15 deaths, as compared with 21 in the previous year; this gives a rate of .83 per 1,000, while the decennial average works out at .86. Bovey and Kingsteignton were credited with 4 fatalities each; Hennock and Widecombe with 2; while others contributed single deaths.

Twenty-eight cases were notified during the year, whose local distribution was as follows:—Bickington, 1; Bishops-teignton, 2; Bovey Tracey, 5; Chudleigh, 2; Coffinswell, Denbury, Hennock, Ilsington and Ipplepen, 1 each; Kingsteignton, 4; Lustleigh, 1; Moreton, 7; and Widecombe, 1.

Two of these were in visitors, who have since left the district; six of the residents have died; two have had Sanatorium treatment.

Influenza was said to be the starting point of disease in six instances—pleurisy and confinement in two others.

Sanitary conditions were generally good; in two cottages, however, some dampness was apparent. Fifteen had separate bedrooms, and of the remainder nine shared a room with one other occupant, generally married persons. Seven were said to have a bad family history in this respect. Two were children under 15; fifteen between 15 and 35 years; nine between 35 and 65 years; and two over the latter age.

Other forms of Tuberculosis produced 5 notifications; two in very young children, and the remainder in young adults (between 15 and 25). In three instances the disease was general, while in the other two the intestines were affected. Four have since died.

At the end of 1920 there were about 135 tubercular

patients living in the district, of whom 121 suffered from phthisis.

CANCER was responsible for 29 deaths, as compared with 30 in the previous year; this is equal to a rate of 1.6 per 1,000, while the average rate for the years 1910-1919 was 1.4. Of these three each were registered at Abbotskerswell, Bovey, Chudleigh, Ilsington, and Moreton; and two each at Cockington, and Kingsteignton.

DIARRHŒA, under the influence of a cool summer, was little in evidence, and there were no fatalities from this cause.

ISOLATION HOSPITAL ACCOMMODATION.—22 Rural Parishes are in the Newton Hospital area; the others still remain outside, but patients are sent to the Exeter Sanatorium at Whipton.

During the year 28 cases (21 diphtheria, 5 scarlet fever, 2 typhoid fever) were sent to Newton, and 7 cases (2 diphtheria and 5 scarlet fever) to Exeter.

SMALL-POX HOSPITAL remains in statu quo; 220 vaccinations were registered in the district.

COTTAGE HOSPITALS for treatment of general diseases exist at Moreton (8 beds), and Bovey Tracey (6). Besides these hospital accommodation is available in the neighbouring towns of Newton Abbot, Teignmouth, Dawlish and Ashburton.

DAIRIES, COWSHEDS and MILKSHOPS.—I visited 208 (203 in 1919) during the year, controlling about 1,980 milking cows. The great majority are kept in very fair condition as regards cleansing and limewashing: only a few notices were necessary. Those supplying milk to Torquay are also inspected by the Sanitary Officials of that town.

OFFENSIVE TRADES are limited to two; they occupy isolated positions, and I have always found them well kept.

BAKEHOUSES (37) are visited from time to time by the Sanitary Inspectors and myself.

SLAUGHTERHOUSES are also under inspection—to the number of 28. Four in the parish of Cockington are, under a special arrangement with the Council, visited also by Mr. G. E. Body (Meat Inspector for Torquay). It is, however, impossible to deal efficiently with the meat question as long as the system of private slaughterhouses exists—especially with our present small staff.

	1914.	Jan. 1920.	Dec. 1920.
Registered	27	23	24
Licensed	7	5	4

HOUSING OF THE WORKING CLASSES.—At the end

of 1920 the position of New Building Schemes in the various parishes was as follows:—

Bickington, three cottages; plans and site approved.

Bishopsteignton, eight cottages; work started.

Bovey, twenty-four cottages; plans and site approved.

Chudleigh, twelve cottages; plans and site approved, but work held up by large cost of extension of sewer and water main.

Coombe, eight cottages; plans and site approved.

Dawlish West, twelve cottages; plans and two sites approved.

Hennock, six cottages; plans and site approved.

Chudleigh Knighton, eight cottages; work started.

Ipplepen, sixteen cottages; work started.

Kingskerswell, twelve cottages; plans and site approved, but work held up on account of sewerage and water costs.

Kingsteignton, sixteen cottages; work started and four nearly finished.

Lustleigh, four cottages; no site yet obtained.

Moreton, sixteen cottages; work started.

Stoke, three cottages; plans and site approved.

Widcombe, eight cottages; plans and site approved.

Woodland, six cottages; plans and site approved.

Thus, in all 162 new dwellings are projected; of these four (Kingsteignton) are approaching completion, while work has begun on schemes representing 60 others.

Outside the building schemes plans for 21 new houses (including bungalows and temporary dwellings) have been passed; also 22 for alterations and additions with respect to existing property.

Thirty-two habitation certificates have been granted (Bovey, Kingskerswell and Kingsteignton, 4 each; Dawlish West and Stoke, 3 each; Bishopsteignton and Chudleigh, 2 each).

With falling prices in prospect, it is difficult at the present high costs to get much work done on old property, but it is in my opinion most important that every dwelling which can be made reasonably habitable should be put into order; those which are allowed to go beyond repair will have to be replaced later on at a cost greatly out of proportion to the economic rent obtainable.

A certain amount of work has, however, been carried out.

The drainage of 81 houses has been put in order, including the provision of flushing apparatus for 65 closets, and the erection of 14 earth closets.

Mr. Gray has completed the house to house inspection of the village of Ideford, and as soon as the new sewer is available, notices to repair defects will be sent to the owners concerned.

Three cases of overcrowding were reported and four cottages were condemned—two at Bovey and two at Chudleigh.

At the census of 1911, there were 4,591 occupied dwellings, with an average of 4.2 per house.

It is difficult to say exactly how many cottages will be needed till the country has finally settled down, and the measure of permanent employment in any given area is a more or less fixed quantity. In the meantime, one can only emphasize the necessity of keeping every possible dwelling in condition as a going concern. The general standard of fitness varies; there are many modern brick houses in the district, besides many of older date. Some of the latter are beyond repair, while others can be much improved by a reasonable outlay. The expedient of turning two cottages into one, or three into two, would in certain cases make a great difference in the accommodation afforded.

With the view of building cheaper cottages, other material than brick or stone, with slate roofing, has been suggested by some authorities, and the revival of the old cob and thatch type of dwelling has its advocates. My experience does not, however, endorse the favourable opinions expressed in this direction—and there are numbers of such dwellings in this District.

The first cost—as estimated—is certainly comparatively low, and that such houses are warmer in winter and cooler in summer, is, I think, their greatest, perhaps, only advantage; except that from the ornamental point of view, many of them present an attractive picture. But they also possess certain drawbacks, which should not be lost sight of.

Cob—and I presume pisé or similar material—has two disadvantages; it is liable to harbour rats, who readily penetrate it, and I have seen many cob walls honeycombed with their runs. Further, any neglect in keeping the top of such a wall dry, is speedily followed by its disintegration; and cob when once damaged, cannot be repaired. Several cottages in this neighbourhood became uninhabitable and were condemned during the war owing to this; the thatched roof got a little out of repair, while labour (especially thatchers) was hard to obtain; the result was leakage and rapid destruction of the wall below. On the other hand a good stone or brick structure has far greater endurance under similar circumstances.

One article I read devoted a good deal of attention to the question of fire, which according to the writer, is much exaggerated. This perhaps is true to some extent, but at the same time I have known of several fires which originated in this way—one was in a bungalow quite recently erected. At any rate, the insurance companies impose a higher charge, and one may take it that this is based on the statistical risks involved. I think the fact that special precautions have to be observed is against the use of this kind of roofing.

Thatch (which in this locality means reed straw) has other failings. Rats, birds, and smaller vermin are quite common in such a roof, especially when old and patched; this generally means a great increase in thickness, with a good deal of the reed in the first (or various) stages of decay. The proper method is of course to take off the whole and replace entirely after a certain time, but this is expensive, and hence patching is commonly resorted to.

Another drawback is liability to let in wet round the chimney stacks; it is usual to put a cement flushing to cover the joint, and on many old cottages a permanent stone drip ledge is provided. After a time, however, the thatch settles down, and a slight gap appears, which is penetrated by driving rain; it is difficult to get a permanent waterproof junction between thatch and stone or brick. An inspection of such cottages should always include a glance at the ceiling round the chimney breasts in the bedrooms.

Then again in certain positions, depending on exposure to wind movements, constant attention and repairs are often entailed; it is true that this kind of roofing may last quite a number of years, especially in sheltered positions. On the other hand, it may speedily become expensive: I have seen the end of a thatched roof turned completely up after a gale when slates in the vicinity were practically undamaged.

A further difficulty is presented by eaves-guttering; the drip from the thatch is not so well defined as that from tile or slate, and in consequence broader gutters are necessary. Owing to the thickness of the thatch it is not possible to fasten these directly to the fascia board, and then the greater weight supported on struts is a frequent source of trouble. The majority of older cottages had in consequence no provision for carrying off the roof water, which was allowed to soak into the footings and drift against the walls.

Where the water is derived from wells and is scanty or

hard in quality, rain water being soft and, therefore, economical for washing purposes, is often found very useful as a supplementary supply—being caught from the roof. Thatch does not, however, lend itself to this, both on account of difficulties as to eaves gutters, and also because in the course of time water derived from this source becomes dirty and turbid (I have seen it the colour of strong tea) from matters taken up from the roof, which from its nature encourages many low forms of vegetable growth.

On the whole I am of opinion that the balance is against the construction of the cob and thatch dwelling, and that the apparent low first cost is in the long run deceptive.

SCAVENGING.—There is a different arrangement in nearly every village. I have had no complaints during the year.

MIDWIVES' ACT is administered by the County Council; there are four health visitors for different parts of the District.

SCHOOL SANITATION.—The reconstruction and improvement of closets and lavatory accommodation at the Moreton Girls' (Council) School mentioned in my last annual report has been carried out.

It is also probable that the Widecombe (Council) School and School House, will be shortly supplied with water from the public main.

WATER SUPPLIES.—There was little complaint of shortage in the District, though the early summer was dry, and the rainfall for the year was hardly up to the average. A considerable activity is, however, manifested in this department, as the following summary will show:—

ABBOTSKERSWELL.—Main extended.

BROADHEMPSTON.—Church House well is again fit for drinking purposes, but the public supply is not yet in sight; it is badly needed in this village.

HENNOCK.—A scheme for supplying the village, which combines the present excellent available springs with a supplement from the Torquay mains in case of shortage, has been prepared by Mr. Chapman (Torquay Water Engineer), and accepted by the Council.

ILSINGTON.—Mr. Segar has been instructed to prepare plans, etc., for extending the mains to Brimley, Cold Es., Halford, and Blackpool.

KINGSKERSWELL.—High prices of material and labour have determined the Council to postpone the extension of the main to Whilborough; this has been under consideration for several years, and is much needed.

KINGSTEIGNTON.—Main extended in two directions for new houses.

LUSTLEIGH.—The water held out better this summer; the scheme for an additional supply is very slowly maturing.

TRUSHAM.—In response to a request from the Parish Council, a committee of the District Council visited the village with a view to getting a public supply; this, however, was found to be impracticable at any expense which could be borne by a population of 160 persons on an acreage of 600. It was decided to improve as far as possible, the present available resources. In the lower part of the village, Pitt Well—for many years abandoned—has been cleaned out, deepened, and relined throughout with brick. This holds about 300 gallons, and after being pumped out fills again in the course of a night; it is of excellent quality, and will constitute a most useful addition. Burgoyne's Well, on the higher levels, which are far the most deficient in this respect, is to be cleaned out.

WIDECOMBE.—The new reservoir at Higher Duaston (of 5,000 gallons capacity) has been completed, and the water piped down to the present cottages, and also to the site of the new ones. Fresh gutters were cut in the field above, pipes laid on, and considerably more water collected.

POUNDSGATE.—This remains in statu quo, as far as the larger scheme is concerned.

SEWERAGE.—The various systems have again been in good working order throughout the year; outfall works mostly comprise land irrigation with or without septic tanks. There is little pollution of streams, and I have had no complaints in this respect during the past year.

The dry system of pails or privies obtains in the smaller villages and more rural parts of the District; where a public water supply is available water closets are general, and these are practically all flushed, except at Denbury, where there is insufficient water for this purpose.

Broadhempston, Coombe and Stoke, which depend on wells, contain however many hand-flushed closets.

The following work has been carried out, or is in contemplation:—

IDEFORD.—At my request a committee of the District Council met at the village with a view to considering a sewage scheme. This was decided to be necessary; part (rather more than half) is to be done at once, and this will put an end to a long standing series of nuisances, where drains discharged in gardens adjacent to the backs of several cottages.

ILSINGTON.—A short piece of sewer and gutter was

provided at Higher Brimley to deal with slop water of several cottages.

IPPLEPEN.—Extension of sewer to Waterloo Cottages has not yet been carried out.

KINGSKERSWELL.—An improvement at the East or main outfall has been effected by increasing the area available for irrigation of the sewage before it enters the stream.

KINGSTEIGNTON.—Sewer extended in two directions for new houses.

MORETON.—Gutters in the outfall field are being cleared and repaired (to keep the sewage from overflowing into the stream).

FOODS and DRUGS ACT is administered by the police; the following samples were taken at Bishopsteignton, Bovey, Chudleigh and Moreton—13 in all:—

Bread	...	...	...	3	Milk (New)	...	...	3
Coffee	...	...	...	1	Oatmeal	...	...	1
Flour	...	...	...	1	Tapioca	...	...	1
Margarine	...	...	...	3				

All were found to be genuine.

I have no reason to suppose that the food supplied in the District is otherwise than wholesome.

ADOPTIVE ACTS AND REGULATIONS IN FORCE IN THE DISTRICT.

Public Health Amendment Act, 1890.

Infectious Diseases Prevention Act, 1890.

Public Health Act, 1907.

Model Regulations under Dairies, etc., Order, 1890.

Model Regulations for Slaughterhouses.

Model Regulations as to Offensive Trades.

Model Building Bye-laws.

APPENDIX ON HOUSING CONDITIONS.

1.—GENERAL.

(1) Estimated population	...	...	...	...	18,066
(2) General death-rate	...	...	...	...	13.0
(3) Death-rate from tuberculosis	...	...	...	...	.83
(4) Infantile mortality	...	...	...	...	46
(5) Number of dwelling houses of all classes	...	...	...	...	4,968
(6) Number of working class dwelling houses	...	...	...	...	3,723
(7) Number of new working class houses erected	...	...	...	...	6

2.—UNFIT DWELLING HOUSES.

I.—Inspection.

(1) Total number of dwelling houses inspected for housing defects (under Public Health or Housing Acts)	204
(2) Number of dwelling houses which were inspected and recorded under the Housing (Inspection of District) Regulations, 1910	43
(3) Number of dwelling houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	4
(4) Number of dwelling houses (exclusive of those referred to under the preceding sub-heading) found not to be in all respects reasonably fit for for human habitation	25

II.—Remedy of Defects without Service of formal Notices.

Number of defective dwelling houses rendered fit in consequence of informal action by the Local Authority or their officers	29
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III.—Action under Statutory Powers.

A. Proceedings under Section 28 of the Housing, Town Planning, etc., Act, 1919.

(1) Number of dwelling houses in respect of which notices were served requiring repairs	—
(2) Number of dwelling houses which were rendered fit—(a) by owners; (b) by Local Authority in default of owners	None.
(3) Number of dwelling houses in respect of which Closing Orders became operative in pursuance of declarations by owners of intention to close	None.

B. Proceedings under Public Health Acts.

(1) Number of dwelling houses in respect of which notices were served requiring defects to be remedied	84
(2) Number of dwelling houses in which defects were remedied—(a) by owners	64
(b) by Local Authority in default of owners...	None.

C. Proceedings under Sections 17 and 18 of the Housing, Town Planning, etc., Act, 1909.

(1) Number of representations made with a view to the making of Closing Orders	4
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|--|-----|-----|-----|-------|
| (2) Number of dwelling houses in respect of which Closing Orders were made | ... | ... | ... | 4 |
| (3) Number of dwelling houses in respect of which Closing Orders were determined, the dwelling houses having been rendered fit | ... | ... | ... | None. |
| (4) Number of dwelling houses in respect of which Demolition Orders were made | ... | ... | ... | None. |
| (5) Number of dwelling houses demolished in pursuance of Demolition Orders | ... | ... | ... | None. |
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PARISHES.

PARISHES.	New Buildings.				Water Consumption in Gallons.	New Watermains, IN FEET.	New Sewers in FEET	Old Houses.				Drain Tests.	Rooms Furnigated.	Rooms Limewashed.	Shippins Paved.
	Built.		Plans Passed.					New Drains.	Houses Served.	Closets Flushed.	E Closets.				
	Houses.	Additions	Houses.	Additions											
Abbotskerswell	3325,000	900		2	2	3		2			
Bickington	62,000										
Bishopsteignton	3,165,000	21,000		3	3	1		7	4		
Bovey Tracey				5	5	7		13	12		
Broadhempstone											
Buckland-in-the-Moor		75		5	8	5		13			
Chudleigh								1			
Cockington											
Coffinswell				1	1	3		1	1		
Dawlish West	3,564,000			3	10	3		6	2		
Haccombe-with-Coombe	1,702,000										
Hennock			150	3	3	2		4	2	1	
Ideford											
Ilington				1	1	2		1	2		
Ipplepen	2,967,000			2	2	2		5	32	1	1
Kingskerswell	5,220,000		820	7	32	30		20			
Kingsteignton	19,929,000							2	2		
Lustleigh								8	1		
Manaton				7	10	5	1	1			
Moretonhampstead				1	1	1		1			
North Bovey	731,000			1	1	1		1			
Ogwell											
Stokeinteignhead		930		1	2	1	2	2	2		1
Telngrove											
Torbrian											
Truham											
Widcombe-in-the-Moor											
Woodland											
	21	22	32	26		22,905	970	42	81	65	14	89	74	3	2

REPORT OF MR. R. A. ROGERS, Surveyor and Sanitary Inspector.

To the Chairman and Councillors of the Newton Abbot
Rural District Council.

Gentlemen,

It is with pleasure that I present my twenty-fifth report on the Sanitary work carried out in the above district in 1920. As will be noticed in the table herewith a great deal has been done, especially when we consider that builders have been fully engaged on Housing Schemes, and the price of materials is quite 300 per cent. above pre-war.

When things become normal it will be necessary to again provide the second assistant, if the sanitary work is to be carried out as it should be done, more particularly the inspection of insanitary houses. I purpose leaving the assistant, Mr. Gray, to report on the Factory and Workshops, Slaughter Houses, Dairies and Cowsheds, as he undertakes this work.

The most important things done in the larger parishes are given below:—

ABBOTSKERSWELL.—The sewerage scheme has worked quite satisfactorily, and although it was carried out in sections out of current rate, there has been no trouble with it since completed, now ten years. The water main has been extended to Fairfield, the owner paying a moiety of the cost. It was hoped the Vicar would have joined in the taking the supply, but for financial reasons only was he unable to do this; the Vicarage is badly in need of a better supply of water. The consumption of water was 3,387,000 gallons, an average of 22 gallons per head per day. Three new closets have been provided and flushed.

BISHOPSTEIGNTON.—The sewage of this village is carried well away, and is disposed on land with irrigation gutters; these are kept cut and cleaned by the Council.

The water supply has caused some anxiety, as we have been obliged to draw very largely upon the auxiliary supply from Teignmouth—3,165,000 gallons. This is in addition to the three springs which formed the only supply. The yield of these springs vary, but I estimate their combined yield would average 3,285,000 gallons. This makes the average consumption of 21 gallons per head per day.

At present we are discussing whether or not we might get water from Whitewell on Haldon, provided Teignmouth would forego any claim they may have.

BOVEY TRACEY.—The sewage works have caused no trouble, other than one portion of the sewage farm; neglect of our man allowed some pollution on the adjoining land.

The water supply has been increased by taking water from Yarner Wood, also from three adits on Haytor Down. From the latter a new three-inch main has been carried to Five Witches and Bleinham. This, we hope, will overcome the lack of pressure in this district.

The work was carried out under loan, and by Mr. S. C. Chapman, Engineer; therefore, I do not propose enlarging upon the scheme. Other improvements have been affected on the old scheme, such as a permanent dam at the intake of Pullabrook Leat, also additional water from the Yarner North Valley. A syphon was fixed over the side of the reservoir to provide an independent supply to Brookfield and Wreyland, two outlying hamlets.

BROADHEMPSTON.—The water supply of this parish is inadequate, and unfortunately for the second time in five years the Church House well became polluted with sewage. This only occurred for a short time, and is now quite satisfactory, as I have taken two samples for analysis since the well was cleaned out.

The sewage calls for no comment, as there are only a few water closets owing to the lack of a proper water supply.

CHUDLEIGH.—The sewage is carried into unlimited land, part of which is owned by the Council, and no complaint. The gutters are cleaned by the Council, and I have a free hand to do it when necessary.

The water supply should be sufficient for all purposes, as we have a minimum yield of 70,000 gallons per day, but during the late summer the reservoir was empty. This should not be, as the reservoir contains 75,000 gallons, and the nocturnal supply is more than ample to keep it full by morning.

COOMBEINTEIGNHEAD.—Some building has been carried out in the parish, and more would be if a better supply of water was obtainable. The Teignmouth main passes through the Village, and although it has a joint claim with Bishopsteignton, the latter consumes the whole amount granted.

DAWLISH WEST.—Early in the year we had considerable trouble and expense with the engines and pumps; however they were eventually set right, and for the past nine months have worked quite well. The two oil engines are insufficient h.p. for the triplex pumps, and have to run at their maximum speed constantly to keep up the supply. The day is not far distant when we shall be obliged to replace our

engine with a new one of greater power. The high price of oil and increase of wages, makes this an expensive water supply. The quantity pumped was 3,564,000 gallons.

Several new Bungalows have been built at the Warren.

DENBURY.—The water supply last spring was anything but satisfactory, and although I was convinced that there was a large leak underground, I had great difficulty in locating it, and eventually discovered a pipe clean broken through, and the water escaping in a fissure in the rock. With this remedied, the water held out during the year better than it has done for a long time, and we hope it will not be necessary to lay down new pipes for some years, although the present ones have been down about 40 years.

The Sewage is fairly satisfactory.

Several Cottages are unoccupied in this Village, and should be put in order.

HENNOCK.—This village has suffered for years from want of water, although the Torquay mains pass through, but at last we have been promised a supply to augment our own and the Torquay Engineer is preparing a scheme which will shortly come before the Ministry of Health for their approval.

At Chudleigh Knighton the sewer through Teign Lawn was undermined by the brook, which meant relaying a portion at great cost. There is already a supply of water from the Torquay main for this part of the parish, and the amount is unrestricted.

IDEFORD.—A house to house inspection has been made, but drainage improvements could not be enforced before a new sewer was laid. A special Committee met there, and I was instructed to prepare a small scheme for the houses below the Royal Oak. This has been done, and the work commenced.

The water supply proved abundant, and no restrictions were resorted to.

IPPLEPEN.—Once we had some flooding of the sewer at the Priory, but this would not have occurred, had the usual expense of cleaning and chaining the sewer been incurred. In my opinion the flat section should be so treated every year. The water supply is from the Paignton main, and we continue to take it by paying a lump sum of £100 per annum, which was the average for three years prior to when the extreme pressure caused the meters to be constantly out of order. Other arrangements have been discussed by the Paignton Engineer and myself.

ILSINGTON.—Improvements have been made to the drainage at Higher Brimley, but the water supply has not yet

been increased, although the parish has decided to extend the water main to these cottages.

In addition it is proposed to carry the mains to Cumming's Cross, Cold East and Blackpool. Mr. Segar, Engineer, has been instructed to prepare a scheme for submission to the Ministry of Health, in anticipation of a loan.

It is a large parish, and the present main is carried down a distance of three miles.

KINGSTEIGNTON.—Sewers are provided for all houses in this place, and with the exception of cleaning out the septic tanks, no expense has been incurred.

Five bungalows of a permanent character have been built on the Exeter Road, but the sewer and water main were laid up close, and only short branches were necessary.

The consumption of water has increased out of proportion to new buildings, and I am convinced it is largely due to waste. However, this is likely to be attended to in future more than in the past.

Twenty-four new water closets have been provided at Pottery Cottages, but as the water supply for these is a private one, it cannot be a cause for increased consumption.

By the death of T. Lang, who attended to the sewers and water, the parish has lost a good servant.

Numerous Cottages require immediate repairs, otherwise will become unfit for habitation; some have been repaired, but others are so dilapidated that one feels it almost false economy to spend money on them, but to press for new ones.

KINGSKERSWELL.—The sewage outfall came in for criticism from the tenant of the land below. It was thought by extending the overflow the difficulty could be overcome. However, such proved to be ineffectual, and at last an agreement has been entered into whereby the tenant of the land adjoining the tanks has undertaken to do the irrigation.

The water is from the Torquay main, and is quite satisfactory. Some repairs have been carried out at the reservoir, and several meters will require replacing. The total consumption was 5,220,000, or an average of about 20 gallons per day. The water bailiff, Mr. E. S. Ford, who held the appointment for 20 years, in fact, since the scheme was carried out, has passed away, and the Council lose a good officer.

LUSTLEIGH.—The parish did not suffer so badly as in previous years through a shortage of water, but it is hoped that the new scheme for bringing in more water from North Harton, will be carried out this year, as the supply is limited.

No complaint has been made as to the sewage, and no expense incurred.

MORETONHAMPSTEAD.—Although the supply of water is abundant, there is often complaint as to shortage on the higher levels. The pressure is not great, but I am convinced that the main pipe home is not large enough to supply all the branches. This is only 4in. diameter, and branches off with four 3in. pipes, when it enters the town. With the new houses being built I think we shall be obliged to duplicate the main before we remedy the failure.

The sewage scheme generally has been sufficient to deal with all conditions.

The Council has been obliged to press the owner of the land upon which the sewage is discharged to keep the irrigation gutters cleaned out.

It is seldom a success where a private person undertakes the treatment of sewage, and I should like all outfalls to be under the Council's control.

Only one large house has been built.

OGWELL.—The water supply is from the Torquay main, carried to a large reservoir. The total consumption was 731,000 gallons, an average of 15 gallons per head per day. This includes supplies to Cowsheds and Dairies.

There are no sewers, and few water closets.

STOKEINTEIGNHEAD.—Two new houses have been built in this parish, in addition to two bungalows at Labrador, and the existing premises have been largely added to.

This is a favourite place for visitors in the summer, and is becoming very popular.

TRUSHAM.—A special committee inspected this village with a view of providing a proper water supply, but it was thought the expense far too great for so small a place, and eventually it was decided to improve the present wells, and to provide one extra pump.

WIDECOMBE-IN-THE-MOOR.—At Dunstone I have carried out a scheme to improve the water supply to the Charity Houses, and also to lay down a pipe for the six new cottages suggested to be built under the Housing Scheme. This is a great improvement and well worth the expense, which will be shared by the Charity Commissioners, some private Owners, and the Council.

Some building has been carried out, and more is likely to be undertaken at once.

With reference to the new houses being built under the Housing Scheme, I am not reporting upon, as the plans are not produced before the General Purposes Committee in the usual manner, and the Surveyor has not the privilege of passing an opinion on their merits or otherwise.

Personally I think it most unfortunate that this is so, more particularly, as to the water services and drains, as in years to come this official will often be called upon to report, and remedy, the troubles which are sure to arise. In my opinion inspection chambers should be provided oftener, and not in some instances where there are eight or ten houses without a single inspection pit.

R. A. ROGERS, A.R.S.I.,

Surveyor and Inspector.

REPORT OF MR. ARTHUR GRAY, Assistant Inspector.

It is with pleasure that I present my first report since demobilisation, on the Bakehouses, Workshops, and Slaughterhouses in the district, and the House to House Inspection, for the year ending 31st December, 1920.

Considerable difficulty has been experienced in getting the different Registers in order again, so many tradesmen having given up during the war, and fresh persons starting.

During the year 195 visits were paid to the various workshops, etc., on the register, and below I give a short description of each trade.

There are 31 Bakehouses; 14 Builders; 11 Coachbuilders and Wheelwrights; 3 Plumbers; 8 Milliners and Dressmakers; 5 Tailors; 4 Laundries; 5 Saddlers; 13 Smiths; and 4 Gasworks; 2 Outworkers; making a total of 110. Only on exceptional cases is overtime worked, and there were a few cases where I found the Abstract not posted up; the Workrooms generally are kept in a clean and satisfactory condition.

BAKEHOUSES.

The majority of these are kept in a very satisfactory condition. They are all limewashed twice a year, but six notices had to be served to enforce this, and a few warnings had to be given as to the untidiness of some of the places; especially one person who gave a considerable amount of trouble and was eventually reported to the Council. The floor of one Bakehouse, after notice, has been concreted.

There is only one Bakehouse that is underground, and during the latter part of the year this one changed hands, and I understand the new occupier does not intend to carry on baking there, he having another bakehouse in an adjoining parish.

BUILDERS.

These workshops are chiefly two storey buildings, approached by either internal or external staircases, the top portion being used as a workshop, whilst the under serves as a store. The sanitary conditions of these are good, and only one notice had to be served during the year.

COACHBUILDERS and WHEELWRIGHTS.

In this trade there are usually two or more Workshops, each used exclusively for building and finishing carriages. They

were all found in very satisfactory condition, being well lighted and ventilated.

TAILORS, MILLINERS and DRESSMAKERS.

These workrooms are usually on the ground floor; in some cases first floor rooms are used. The air spaces and sanitary accommodation are ample for all the workers, and no notices were served. One new tailor's shop was built during the year.

PLUMBERS, SADDLERS, SMITHS and GASWORKS.

These were all found during the year in very fair condition. There are not many employed as Plumbers and Saddlers especially in the latter; the Plumbing work during the year has been more of an outdoor trade on account of the building operations. I found scarcely anyone employed during my visits in the Workshops.

The Smiths are all satisfactory as to ventilation and other sanitary matters, and also the same as regards the four Gasworks in the district.

LAUNDRIES.

These have considerably decreased since 1914, I suppose on account of more modern and larger Sanitary Laundries, that have started in the district and just outside, they providing the means for collecting and delivering the articles. Those on the register were in every case found in a very cleanly condition.

SLAUGHTERHOUSES.

There are 28 on the Register. Sixty-two personal visits were paid to these in the district, in addition to those of the M.O.H. and the Chief Inspector, and except on three occasions the premises have been found in a cleanly state. Notices were served, and the work was done without delay. The floors are all washed down at the end of the day, when slaughtering has taken place, and all offal is removed the next day.

The walls of nearly all are cement rendered, to a height of five or six feet, and all are limewashed four or five times a year, some monthly.

Each has plenty of light and ventilation, a plentiful supply of water on the premises, and, on the whole, are very satisfactory. One new one was licensed during the year.

The number has decreased since 1914, and in the neighbouring villages around Newton Abbot very little slaughtering

of animals is carried out, most of the butchers buying the meat wholesale. and fetching it from the Public Abattoir in the town.

In addition to the Inspection of Workshops, etc., my time is also employed in making inspections under the Housing and Town Planning Act, in drain testing, of which 89 were done, and the fumigating and spraying with cyllin, rooms after infectious disease, which amount this past year to 74 rooms. I also inspected the Dairies and Cowsheds with the M.O.H.

There has not been so much attention employed on the Housing and Town Planning Act in the district as before the War, on account of their being only myself employed as Assistant, instead of two employed before the War; but if better means were provided for getting about the district, I should, however, be able to give much more attention to this work.

During the year I started a house to house inspection of Ideford, and inspected all the houses in the Village; many of these are small and below the modern standard of general accommodation and lacking in such necessities as wash-houses, copper, sink, drain and food stores, but much, however, could be done to improve them.

There were very few houses that had any proper drainage, and in some cases, the drainage from a farm yard passed alongside and beneath houses, the drainage from some others discharging in close proximity to the houses, which presented the appearance of an open sewer with foul accumulations of stagnant, putrifying sewage. Consequently Dr. Mapleton reported the matter to the Council, when a special committee met on the spot, and recommended the laying of a sewer. This was commenced during the latter part of the year, and as soon as completed, notices will be served on the owners to put the cottages in a sanitary and tenantable repair.

The pot water which runs through the village, in front of most of the houses, has provided the means for emptying the slop water; this during a hot summer was very objectionable. The total number of houses in the village are 44; of these 33 were cottages, and in these lived 67 adults, and 41 children, or an average of just over three persons per house. Excluding back kitchens and sculleries, the number of living rooms totalled 117, or just over .9 persons per room.

No overcrowdings were found, and the greatest number of tenants amounted to 7 (5 children) in a three-roomed house, 6 (3 children) in a four-roomed house.

There were 3 houses containing 2 rooms.

„	11	„	3	„
„	13	„	4	„
„	4	„	5	„
„	4	„	6	„
„	9	„	over 6	„

A great majority had slate roofs; seven had thatch, and a few galvanized iron, and were all generally in good order.

All the houses in the village depended upon the public water supply.

Closet Accommodation.—There were six water closets, only two were flushed; 27 pail privies, and 5 of the old pit variety.

Nearly all the houses require some sort of improvement.

ARTHUR GRAY, F.R.S.I.,

Asst. Inspector.

COMPARATIVE TABLE.

DEATHS FROM.	1920	Average of years 1910-1919	1919	1918	1917	1916	1915
Small Pox	—	—	—	—	—	—	—
Measles	—	1	—	2	1	—	3
Scarlet Fever	—	1	—	—	1	2	2
Whooping Cough	—	2·5	5	3	—	3	4
Typhoid, &c.	—	·5	—	—	—	—	—
Diphtheria	3	2	—	3	—	5	4
Diarrhoea	—	2	2	1	—	1	1
TOTAL 7 CHIEF ZYMOTICS :	3	9	7	9	2	11	14
Influenza	5	11	22	28	8	7	8
Phthisis	15	16	21	27	12	13	12
Other Tubercular Diseases	5	5	7	5	5	5	6
Respiratory Diseases ...	20	37	41	28	40	42	43
Circulatory Diseases ...	54	42	50	55	53	53	47
Cancer	29	25	30	28	15	28	18
Violence	8	9	4	3	7	5	4
All other Diseases	96	98	99	68	65	95	99
Total Deaths	235	252	281	260	207	259	251
Estimated Population ...	18066	18493	17374	16421	16830	18043	18782
General Death Rate ...	13·0	13·6	16·2	15·8	12·3	14·3	13·4
Zymotic Death Rate ...	·17	·49	·40	·55	·12	·60	·75
Total Births	437	327	267	252	251	321	328
Birth Rate	24·2	17·1	14·8	13·7	13·4	16·3	17·5
Deaths under 1 year ...	20	24	19	17	15	21	35
„ between 1 & 5 years	10	9	7	12	5	18	9
„ over 65 years	116	117	144	110	115	123	126
„ und'r 1 yr.to 1000 bths.	46	73	71	67	60	65	107
Average age at Death ...	53·6	52·7	56·4	51·5	57·3	53·0	50·9
TRANSFERABLE DEATHS.							
In Union House } belonging	18	16	25	16	17	18	14
In County Asylum } to District	6	6	8	10	6	7	8
Others added	30	17	14	18	15	20	13
Deducted not belonging to District	6	14	11	16	13	9	21

ANALYSES OF WATERS—1920.

No.	Source.	Date of collection of Sample.	Physical characters.	Free Ammonia	Albumenoid Ammonia	Nitrogen from Acids	Chlorine	Total Solids	Oxygen Absorbed	Remarks.
				Parts per 1,000,000			grains per gallon			
1	Broadhempston. Church House well	Jan. 12	good	·05	·145	—	3·85	35·0	moderate	This well is slowly recovering from the effects of sewage pollution in the preceding spring.
2	Broadhempston. Church House well	July 10	good	·005	·09	—	2·9	35·0	moderate	
3	Ilsington. Well, Blackpool School	Mar. 7	good	·025	·21	·50	6·3	49·0	considerable	This well can no longer be considered fit for drinking.
4	Ilsington. Well, Blackpool School	Oct. 29	yellow color	·01	·15	—	6·3	51·8	very large turned brown	
5	Manaton. Well, Rectory ...	Sept. 1	good	nil	·065	1·2	1·4	7·0	moderate	A very fair well water.
6	Trusham. Burgoyne's well ...	May 28	yellow color	·06	·24	2·5	5·6	15·4	moderate	No improvement—still unfit to drink.
7	Trusham. Well, Rectory ...	May 28	good	·015	·31	2·5	4·2	15·4	moderate	Pollution—probably by a choked slop water drain.
8	Trusham. Vinnicombe's well	July 17	good	nil	·06	5·8	2·4	14·0	moderate	All these are of very fair quality.
9	Trusham. Spring, Old Rectory	July 30	good	·01	·08	2·1	2·1	17·5	small	
10	Trusham. Well, Rose Cottage	Aug. 13	good	·015	·07	·42	1·8	15·4	moderate	

